



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,403	03/16/2004	Yukio Abe		5091
24978	7590	04/22/2005		
			EXAMINER	
			MERCEDES, DISMERY E	
			ART UNIT	PAPER NUMBER
			2651	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/801,403	ABE ET AL.	
	Examiner	Art Unit	
	Dismery E Mercedes	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 March 2004.
2a) This action is **FINAL**. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) Claim(s) _____ is/are allowed.
6) Claim(s) 1-9 is/are rejected.
7) Claim(s) _____ is/are objected to.
8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 16 March 2004 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/16/2004.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 3/16/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 7 is objected to because of the following informalities: it is not clear if this claim is intended to be independent or dependent claim. It is suggested by the examiner that if the applicant intends to have claim 7 dependent on claim 1, to rewrite this claim in the appropriate dependent form (i.e. "A shock detection device according to claim 1, further comprising a disk drive..."). Otherwise, to rewrite this claim in the appropriate independent form. Appropriate correction is required.

Note: It is noted that for further purposes of examination, the examiner has considered claim 7 to be dependent on claim 1.

Claim Rejections - 35 USC § 112

4. Claim 7 rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. It is unclear what the applicant is trying to convey in the recitation "a control part that outputs data input from outside and the timing of writing at the time of writing the data". This claim is an omnibus type claim.
5. Claim 7 recites the limitation " a shock detection device according to claim 1 that outputs said shock detection signal when a shock applied to said disk medium satisfies said prescribed condition; a write-protection circuit that stops the timing of writing from said control part when said shock detection signal is input thereto from said shock detection device." in page 16, line 11-page 17, line 16, which is inconsistent with what is recited in claim 1. Therefore, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1,3-6,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kikuta et al. (US 6,510,014 B2).

As to Claim 1, Kikuta et al. discloses a shock detection device adapted to output a shock detection signal for stopping writing into a disk medium when a shock applied to said disk medium satisfies a prescribed condition (col.4, lines 10-20), said shock detection device comprising: a shock

sensor that detects a shock applied to said disk medium and outputs a corresponding shock sensor signal (col.4, line 11); a variable shock detection slice value setting pad that sets a variable shock detection slice value, which is a threshold for said shock sensor signal, based on a position error signal representative of the relative position of said disk medium in a radial direction thereof from the center of a target track of said disk medium (col.4, lines 48-53, 64-67; col.6, lines 30-44; col.7, lines 24-30); and a shock determining part that outputs a shock detection signal when said shock sensor signal exceeds said variable shock detection slice value (col.8, lines 34-62; col.9, lines 17-37).

As to Claim 3, Kikuta et al. further discloses said shock determining part does not output the shock detection signal when the absolute value of said position error signal is in a prescribed range (col.2, lines 1-11; col.8, lines 34-62; col.9, lines 17-37).

As to Claim 4, Kikuta et al. further discloses a shock sensor signal correction part that outputs, as a new shock sensor signal, a signal by removing noise generated in synchronization with writing from said shock sensor signal (col.3, lines 1-5; col.5, lines 5-15; col.9, lines 3-12).

As to Claim 5, Kikuta et al. discloses Kikuta et al. discloses a shock detection device adapted to output a shock detection signal for stopping writing into a disk medium when a shock applied to said disk medium satisfies a prescribed condition (col.4, lines 10-20), said shock detection device comprising: a shock sensor that detects a shock applied to said disk medium and outputs a corresponding shock sensor signal (col.4, line 11); a shock sensor signal correction part that outputs, as a new shock sensor signal, a signal by removing noise generated in synchronization with writing from said shock sensor signal (col.3, lines 1-5; col.9, lines 3-12); and a shock determining part that outputs a shock detection signal when said shock sensor signal exceeds said variable shock detection slice value (col.8, lines 34-62; col.9, lines 17-37).

As to Claim 6, Kikuta et al. further discloses said noise is extracted by averaging a plurality of shock sensor signal outputs acquired in synchronization with the timing of said writing (col.8, lines 40-45; col.9, lines 1-5).

As to Claim 7, Kikuta et al. discloses a control part that outputs data input from outside and the timing of writing at the time of writing the data (as depicted in FIG.2, "58"); an R/W head that performs writing or reading with respect to said disk medium (col.4, line 21, to "inhibit a read/write operation" indicates that a R/W head is present); an R/W circuit that reads said position error signal from an output of said R/W head, and outputs data from said control part to said R/W head in accordance with the timing of writing from said control part (as depicted in FIG.2, "68", "72", "54" and "55" & col.4, lines 10-22), a shock detection device that outputs said shock detection signal when a shock applied to said disk medium satisfies said prescribed condition (col.4, line 11); and a write-protection circuit that stops the timing of writing from said control part when said shock detection signal is input thereto from said shock detection device (col.4, lines 17-22, col.8, lines 34-62; col.9, lines 17-37 & Fig. 2, "55", the R/W operation inhibition signal device generates a R/W inhibition signal which stops the R/W head from writing to the disk to protect data).

As to method claim 8, it is drawn to the apparatus of claims 1 and 5, and is therefore rejected for the similar reasons set forth in the rejection of claims 1 & 5, supra.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuta et al.

Kikuta et al. discloses the shock detection circuit according to base claim 1, as discussed above. Kikuta does not specifically disclose wherein shock detection slice value setting part sets said variable shock detection slice value in such a manner that the smaller the absolute value of said position error signal, the larger does said variable shock detection slice value become.

However, Kikuta teaches that the slice level is obtained dependent on the magnitude of value from a position signal error, thus if the value of position signal error changes the slice value also changes (col.3, lines 11-25 & col.6, lines 30-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a technique as disclosed by Kikuta et al. the motivation being because it would provide the shock detector device with the enhanced capability of improving the accuracy of disturbance (i.e. shock) detection and correction-value adjustments.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuta et al in view of Serrano et al. (6,229,140).

As to Claim 9, Kikuta et al. discloses the steps recited in claim 9, as discussed in the 102(b) rejection of claim 5 above, but fail to specifically disclose a program for making a computer execute a shock detection method. However, Serrano et al. discloses such (col.9, lines 10-17). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of invention to implement a CPU (which is very well known in the art), to program the steps as disclosed by Serrano et al., the motivation being because it would provide the shock detector disclosed by Kikuta et al. with the

enhanced capability of implementing/processing/executing the desired operation of the shock detection using the desired steps (col.9, line 15-17 of Serrano et al.).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Codilian et al. (US 6,735,033 B1) discloses a method for recovering from shock events occurring to a disk drive during data write operations to improve data reliability.
- Pan et al. (6,178,058 B1) discloses an off-track write protection method and system from induced mechanical disturbance on a disk drive.
- Carlson et al. (6,018,431) discloses a disk drive with shock evaluator.
- Gong et al. (US 6,683,737 B2) discloses a method and apparatus for predictive failure analysis technique for head crashes in hard drives using position error signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dismery E Mercedes whose telephone number is 571-272-7558. The examiner can normally be reached on Monday - Friday, from 9:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dismery E Mercedes
Examiner
Art Unit 2651

DM 10M 9/11/05


DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600